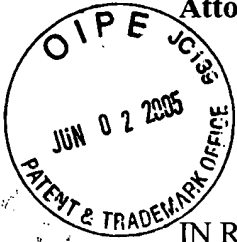


Case

Attorney Docket No: HASH0012UPCTUS



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE PATENT OF: Kawasaki et al.

CONFIRMATION NO: 2809

US APPLICATION NO.: 09/926,186

FILING DATE: 1/14/2002

US PATENT NO: 6,878,962 B1

ISSUED: April 12, 2005

GROUP ART UNIT: 2811

EXAMINER: Hu, Shouxiang

FOR: Semiconductor Device

Certificate
JUN 06 2005
of Correction

ATTN: Certificate of Correction Branch

Commissioner for Patents

PO Box 1450

Alexandria VA 22313-1450

37 CFR 1.322(a)(1)(i) REQUEST FOR CERTIFICATE OF CORRECTION
OF USPTO'S MISTAKE

SIR:

The following is a request for a certificate of correction in Serial Number 09/926,186,
now Patent Number 6,878,962.

A certificate of correction under 35 USC 254 is respectfully requested in the above-
identified patent.

The errors are typographical errors. On April 1, 2004, the applicant submitted claim
amendments. A copy of the amendment filed April 1, 2004 is Attachment 1. On March 4, 2005,
the USPTO mailed a paper stating that the amendment filed April 1, 2004 had been entered. The

JUN 07 2005

paper mailed 3/4/2005 is Attachment 2.

However, the claims as published differ from those in the amendment filed April 1, 2004 in that there are multiple typographical errors.

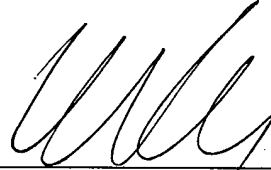
The multiple typographical errors in the published claims are shown on the attached Form PTO 1050.

The error is the fault of the USPTO and, accordingly, no fee is due.

6/1/2005

DATE

Respectfully Submitted,



Richard A. Neifeld

Registration No. 35,299

Attorney of Record

Nicole A. Coy

Registration 54,051

NAC

Printed: June 1, 2005 (11:34am)

Y:\Clients\Hashizume\HASH0012UPCTUS\Drafts\Req_COC_050601.wpd

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,878,962 B1

ISSUED : April 12, 2005

INVENTORS(S) : Kawasaki et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In claim 1, column 12 line 56 reading "(1) a material of formula LnABO_4 or $\text{LnAO}_3(\text{BO})_n$," should read -- (1) a material of formula LnABO_4 or $\text{LnAO}_3(\text{BO})_n$, -- ;

In claim 1, column 12 line 59 reading "Fe, Ga and Al;" should read -- Fe, Ga and Al, -- ;

In claim 1, column 12 lines 62-63 reading "(2) a material of formula ScAlBeO_4 , ScBMgO_4 , ScBBeO_4 , or $\text{LnAO}_3(\text{MgO})_n$ " should read -- (2) a material of formula ScAlBeO_4 , ScBMgO_4 , ScBBeO_4 , or $\text{LnAO}_3(\text{MgO})_n$ -- ;

In claim 1, column 12 line 66 reading "A is selected from the group consisting of Fe, Ga and Al" should read -- A is selected from the group consisting of Fe, Ga and Al; -- ;

In claim 2, column 13 line 11 reading "(1) a material of formula LnABO_4 or $\text{LNAO}_3(\text{BO})_n$," should read -- (1) a material of formula LnABO_4 or $\text{LNAO}_3(\text{BO})_n$, -- ;

In claim 3, column 13 line 19 reading "goup" should read -- group -- ;

In claim 4, column 13 line 21 reading "ciaimed" should read -- claimed -- ;

In claim 4, column 13 line 23 reading "magnesiwn" should read -- magnesium -- ;

In claim 5, column 13 line 35 reading "matal" should read -- material -- ;

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION (CONTINUED)**

In claim 5, column 13 line 35 reading "semiconducior" should read -- semiconductor -- ;

In claim 6, column 13 line 38 reading " $\text{ScAlO}_n, (\text{ZnO})_n$," should read -- $\text{ScAlO}_3(\text{ZnO})_n$ -- ;

In claim 7, column 14 line 2 reading "compriing" should read -- comprising -- ;

In claim 12, column 14 line 34 reading "slected" should read -- selected -- .

MAILING ADDRESS OF SENDER:

Neifeld IP Law, PC
4813-B Eisenhower Avenue
Alexandria, Virginia 22304

PATENT NO. 6,878,962 B1

No. of additional copies 3

1/2/04
cs

Attachment 1

Neifeld IP Law, P.C.
Crystal Plaza 1, Suite 1001
2001 Jefferson Davis Highway
Arlington, VA 22202

THIS IS A FILING RECEIPT

Neifeld IP Law Docket No.: HASH0012U/PCT/US
Application Serial No.: 09/926,186
Filed: 01/14/02
Inventor: KAWASAKI ET AL.
Title: SEMICONDUCTOR DEVICE



The following has been received in the U.S. Patent Office on the date stamped hereon:

AMENDMENT COVER LETTER/AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT (IN DUPLICATE)
37 CFR 3.112 AMENDMENT AND SUMMARY OF TELEPHONE INTERVIEW (6 PAGES)

STATUS CHECK: 6/2/04

Y:\Clients\Hashizume\HASH0012UPCTUS\Drafts\FR040401.wpd

Am - HASH0012UPCTUS - 040402 cs

Docket No. HASH0012UPCTUS

IN RE APPLICATION OF: Kawasaki et al.

SERIAL NO: 09/926,186

FILED: 1/14/02

FOR: Semiconductor Device

ASSISTANT COMMISSIONER FOR PATENTS
ALEXANDRIA, VA 22313

**AMENDMENT COVER LETTER
INCLUDING AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT**

SIR:

Transmitted herewith is an amendment in the above-identified application.

- ☒ No additional fee is required
- ☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement previously submitted.
- ☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement submitted herewith.
- ☐ Additional documents filed herewith:

The Fee has been calculated as shown below:

CLAIMS	CLAIMS REMAINING		HIGHEST NUMBER PREVIOUSLY PAID	NO. EXTRA CLAIMS	RATE	CALCULATION S	
TOTAL	13	MINUS	22	0	× \$18 =	\$0.00	
INDEPENDENT	1	MINUS	3	0	× \$86 =	\$0.00	
		<input type="checkbox"/>	MULTIPLE DEPENDENT CLAIMS		+ \$290 =	\$0.00	
		TOTAL OF ABOVE CALCULATIONS				\$0.00	
		<input type="checkbox"/>	Reduction by 50% for filing by Small Entity				\$0.00
		<input type="checkbox"/>	Recordation of Assignment			+ \$40 =	\$0.00
		<input type="checkbox"/>	Petition for Extension of Time: 1 Month			+ \$110 =	\$0.00
		<input type="checkbox"/>	2 Months			+ \$420 =	\$0.00
		<input type="checkbox"/>	3 Months			+ \$950 =	\$0.00
		<input type="checkbox"/>	4 Months			+ \$1,480 =	\$0.00
		<input type="checkbox"/>	Terminal Disclaimer			+ \$130 =	\$0.00
		<input type="checkbox"/>	Information Disclosure Statement Prior to Final			+ \$180 =	\$0.00
		<input type="checkbox"/>	Other:				
		TOTAL				\$0.00	

☐ A check including the amount of \$0.00 is attached.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 50-2106.

31518

PATENT TRADEMARK OFFICE

Neifeld IP Law, PC
2001 Jefferson Davis Highway
Suite 1001
Arlington, VA 22202

4-1-2004

Date

Respectfully Submitted,

Richard A. Neifeld, Ph.D. Reg. No. 43,402

for Richard A. Neifeld, Ph.D.

Registration No. 35,299

Attorney of Record

Tel: 703-415-0012

Fax: 703-415-0013

Email: rneifeld@Neifeld.com

Y:\Clients\Hashizume\HASH0012UPCTUS\Drafts\Am Cvr Ltr_040401.wpd

Docket No. HASH0012UPCTUS

IN RE APPLICATION OF: Kawasaki et al.

SERIAL NO: 09/926,186

FILED: 1/14/02

FOR: Semiconductor Device

ASSISTANT COMMISSIONER FOR PATENTS

ALEXANDRIA, VA 22313

**AMENDMENT COVER LETTER
INCLUDING AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT**

SIR:

Transmitted herewith is an amendment in the above-identified application.

- ☒ No additional fee is required
- ☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement previously submitted.
- ☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement submitted herewith.
- ☐ Additional documents filed herewith:

The Fee has been calculated as shown below:

CLAIMS	CLAIMS REMAINING		HIGHEST NUMBER PREVIOUSLY PAID	NO. EXTRA CLAIMS	RATE	CALCULATION S	
TOTAL	13	MINUS	22	0	× \$18 =	\$0.00	
INDEPENDENT	1	MINUS	3	0	× \$86 =	\$0.00	
		<input type="checkbox"/> MULTIPLE DEPENDENT CLAIMS				+ \$290 =	\$0.00
		TOTAL OF ABOVE CALCULATIONS					\$0.00
		<input type="checkbox"/> Reduction by 50% for filing by Small Entity					\$0.00
		<input type="checkbox"/> Recordation of Assignment				+ \$40 =	\$0.00
		<input type="checkbox"/> Petition for Extension of Time: 1 Month				+ \$110 =	\$0.00
		<input type="checkbox"/> 2 Months				+ \$420 =	\$0.00
		<input type="checkbox"/> 3 Months				+ \$950 =	\$0.00
		<input type="checkbox"/> 4 Months				+ \$1,480 =	\$0.00
		<input type="checkbox"/> Terminal Disclaimer				+ \$130 =	\$0.00
				<input type="checkbox"/> Information Disclosure Statement Prior to Final			
<input type="checkbox"/> Other:							
TOTAL					\$0.00		

☐ A check including the amount of \$0.00 is attached.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 50-2106.

31518

PATENT TRADEMARK OFFICE

Neifeld IP Law, PC
2001 Jefferson Davis Highway
Suite 1001
Arlington, VA 22202

Y:\Clients\Hashizume\HASH0012UPCTUS\Drafts\Am Cvr Ltr_040401.wpd
Printed: April 1, 2004 (11:30am)

Respectfully Submitted,

Richard A. Neifeld, Reg. No. 43,402

Richard A. Neifeld, Ph.D.

Registration No. 35,299

Attorney of Record

Tel: 703-415-0012

Fax: 703-415-0013

Email: rneifeld@Neifeld.com

NEW DOCKET NO: HASH0012U/US
OLD DOCKET NO: 212771US22PC

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: KAWASAKI, et al. CONFIRMATION NO. 2809

US APPLICATION NO: 09/926,186

DATE OF ENTRY INTO THE NATIONAL STAGE: 1/14/2002

GROUP ART UNIT: 2809

EXAMINER: HU, S.

TITLE: SEMICONDUCTOR DEVICE

ASSISTANT COMMISSIONER FOR PATENTS

ALEXANDRIA, VA 22313

37 CFR 3.112 AMENDMENT AND SUMMARY OF TELEPHONE INTERVIEW

Sir:

Subsequent to the Notice of Allowance and the Examiner's Amendment mailed March 4, 2004, please amend this application as follows:

Amendments to the Claims are reflected in the listing of claims which begin on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

IN THE CLAIMS:

LISTING OF ALL CLAIMS:

Claims 1-10. (Canceled)

11. (Previously presented) A semiconductor device as claimed in claim 31, wherein said substrate for a basic structure contains
- (1) a material of formula LnABO_4 or $\text{LnAO}_3(\text{BO})_n$, wherein,
- Ln is a rare earth element,
- A is selected from the group consisting of Fe, Ga and Al,
- B is selected from the group consisting of Mn, Co, Fe, Zn, Cu, Mg, and Cd.
12. (Previously Presented) The semiconductor device as claimed in Claim 11, wherein Ln is selected from the group consisting of Sc, In, Lu, Yb, Tm, Ho, Er and Y.
13. (Previously Presented) The semiconductor device as claimed in Claim 11, wherein the group II metal oxide is selected from the group consisting of zinc oxide (ZnO), zinc magnesium oxide ($\text{Mg}_x\text{Zn}_{1-x}\text{O}$), zinc cadmium oxide ($\text{Cd}_x\text{Zn}_{1-x}\text{O}$) and cadmium oxide (CdO).
14. (Previously Presented) The semiconductor device according to claim 11, wherein said substrate is a material selected from the group consisting of ScAlMgO_4 , ScAlZnO_4 , ScAlCoO_4 , ScAlMnO_4 , ScGaZnO_4 , ScGaMgO_4 , $\text{ScAlZn}_3\text{O}_6$, $\text{ScAlZn}_4\text{O}_7$, $\text{ScAlZn}_7\text{O}_{10}$, $\text{ScGaZn}_3\text{O}_6$, $\text{ScGaZn}_5\text{O}_8$, $\text{ScGaZn}_7\text{O}_{10}$, $\text{ScFeZn}_2\text{O}_5$, $\text{ScFeZn}_3\text{O}_6$, and $\text{ScFeZn}_6\text{O}_9$, and,
- ZnO is used as a material for said semiconductor layer.
15. (Previously Presented) The semiconductor device according to claim 11, wherein said substrate is a material selected from the group consisting of ScAlO_3 , $(\text{ZnO})_n$, $\text{ScFeO}_3(\text{ZnO})_n$, $\text{ScGaO}_3(\text{ZnO})_n$, $\text{InFeO}_3(\text{ZnO})_n$, $\text{InGaO}_3(\text{ZnO})_n$, $\text{InAlO}_3(\text{ZnO})_n$, $\text{YbAlO}_3(\text{ZnO})_n$, and $\text{LuAlO}_3(\text{ZnO})_n$, and,
- ZnO is used as a material for said semiconductor layer.
16. (Canceled)
17. (Previously Presented) The semiconductor device according to claim 11, further comprising a buffer layer, between said substrate and said semiconductor layer,

wherein said buffer layer contains a material having a composition or a structure identical to that of said semiconductor layer as a base and slightly doped or undoped with impurities.

18. (Previously Presented) The semiconductor device according claim 17,
wherein ZnO is used for said semiconductor layer, and
said buffer layer is an insulating material slightly doped with an element capable of taking valence of 1 value or a group V element, an insulating material containing undoped and pure insulating ZnO or a combination thereof.
19. (Previously Presented) The semiconductor device according to claim 18,
wherein said buffer layer is ZnO.
20. (Previously Presented) The semiconductor device according to Claim 11,
further comprising an insulating layer formed by using a material identical to that for said substrate for a basic structure.
21. (Previously Presented) The semiconductor device according to claim 11,
further comprising a light emission layer formed on said semiconductor layer by using a material having a composition or a structure identical to that of said semiconductor layer as a base, and
a second semiconductor layer which is formed on said light emission layer by using a material having a composition or a structure identical to that of said semiconductor layer, and which has carriers that have a different conductive sign from carriers of said semiconductor layer.
22. (Previously Presented) The semiconductor device according to claim 21,
wherein said light emission layer is selected from the group consisting of a multilayer structure of (Mg, Zn)O and ZnO, a multilayer structure of (Zn, Cd)O and ZnO, and a multilayer structure of (Mg, Zn)O and (Zn, Cd)O.
23. (Previously Presented) The semiconductor device according to claim 11,
wherein input and output electrodes are further formed on said semiconductor layer.

Claims 24-30 (Canceled)

31. (Currently amended) A semiconductor device comprising,
a substrate for a basic structure containing
(1) a material of formula LnABO_4 or $\text{LnAO}_3(\text{BO})_n$,
wherein,

Ln is a rare earth element,

A is selected from the group consisting of Fe, Ga and Al,

B is selected from the group consisting of Mn, Co, Fe, Zn, Cu, Mg, and Cd, or

(2) a material of formula ScAlBeO_4 , ScBMgO_4 , ScBBeO_4 , or
 $\text{LnAO}_3(\text{MgO})_n$

wherein,

Ln is a rare earth element,

A is selected from the group consisting of Fe, Ga and Al;

and

a semiconductor layer formed on said substrate,

wherein said semiconductor layer is formed from a material comprising a group II metal oxide;

wherein said semiconductor layer is formed on said substrate by depositing said semiconductor layer at temperatures from 350 °C to 600 °C, so to achieve high nitrogen doping concentration therein.

32. (Canceled)

33. (Canceled)

REMARKS

1. Status of Claims

Claims 11-15, 17 -23 and 31 are pending in the application.

Claims 1-10 and 25 were canceled by the applicants.

Claims 16, 24-30 and 32-33 were cancelled by the examiner, as shown in the examiner's amendment mailed March 4, 2004.

This amendment amends claim 31 to introduce a semicolon omitted from the examiner's amendment.

No new matter has been introduced.

2. Summary of Telephone Interview

Examiner Hu is thanked for the courtesy extended to the applicants representative Irina S. Zemel during a telephone interview on January 30, 2004. During the telephone call initiated by the examiner, Examiner Hu re-instated the election of species requirement between a semiconductor layer formed of a group-II metal oxide and a semiconductor layer formed of group III nitrides. Examiner Hu proposed allowance of all claims restricted to semiconductors formed from a group-II metal oxide species. The applicants agreed. Examiner Hu then entered an examiners amendment limiting claim 31 to a semiconductor layer formed from a material containing a group-II metal oxide and canceling claims 16 and 24-30.

The election requirement between a semiconductor layer formed of a group-II metal oxide and a semiconductor layer formed of material selected from the group consisting of GaN, AlN, InGaN and AlInN (group III nitrides) was imposed by the examiner in the office action dated February 25, 2003. The applicants traversed this election of species requirement in their reply dated March 25, 2003. Examiner Hu withdrew the election of species requirement in the office action mailed June 12, 2003. Therefore, the election of species requirement imposed by the examiner during the telephone interview on January 30, 2003 is FINAL, because this requirement was a reinstatement of a previously imposed requirement. MPEP 821.01.

Should the examiner have any questions, he is urged to contact the undersigned applicants' representative at 703-415-0012 at extension 24.

Respectfully Submitted,

4-1-2004

Date

Irina Zemel

Irina Zemel, Ph.D.
Registration No. 43,402
Richard A. Neifeld, Ph.D.
Registration No. 35,299

31518

PATENT TRADEMARK OFFICE

ISZ

Printed: March 30, 2004 (3:35pm)

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Attachment 2

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,186 ✓	01/14/2002 ✓	Masashi Kawasaki ✓	HASH0012UPCTUS ✓	2809 ✓
31518	7590	03/04/2005		
NEIFELD IP LAW, PC 2001 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202		No Date Set	EXAMINER HU, SHOUXIANG	
			ART UNIT 2811	PAPER NUMBER
DATE MAILED: 03/04/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Response to Rule 312 Communication	Application No.	Applicant(s)	
	09/926,186	KAWASAKI ET AL.	
	Examiner	Art Unit	
	Shouxiang Hu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☐ The amendment filed on 01 April 2004 under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

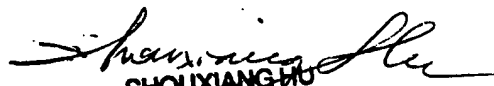
b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.


SHOUXIANG HU
PRIMARY EXAMINER